

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Interactive Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (IPB)

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## SUMMER STUDENTS INTERNSHIP PROGRAM AT THE SHARJAH ACADEMY FOR ASTRONOMY, SPACE SCIENCES, AND TECHNOLOGY

### Abstract

STEM (Science, Technology, Engineering, and Mathematics) education is becoming a major concern for many educational institutions worldwide. The number of students reaching sciences and engineering has been decreasing. The United Arab Emirates, because of its space exploration program, started to tackle this problem by introducing several space programs requiring qualified engineers and scientists in the space domain. Every university in the UAE is now proposing degrees in space engineering and space sciences. The lack of adequate knowledge of the students in STEM has pushed universities to implement specific student internships in space applications. Being a space sciences leader institution in the MENA world, the Sharjah Academy for Astronomy, Space Sciences, and Technology (SAASST) has initiated several summer internships for all UAE students.

SAASST presently operates seven research laboratories: (1) CubeSat, (2) Radio Astronomy, (3) Meteorite, (4) High Energy Astrophysics, (5) Space Weather Ionospheric, (6) Space Artificial Intelligence, and (7) Rocket Propulsion and Exhaust Systems. Engineering and sciences university students are now required to have an 8-12 weeks internship program to advance into their university curriculum. Since 2018, SAASST receives applications from hundreds of students requesting to be interns in one of its laboratories. In 2018, the number of accepted students was 13. In 2022, it reached 32, an almost three-fold increase. Depending upon their specific majors, students are assigned to one of the seven laboratories and follow a well-defined work program for the whole period of their internship. The overall objectives of the training are as follows: 1. Understand the fundamentals of the assigned laboratory, concepts, and principles. 2. Do on-the-job training on different types of instruments, applications, and site visits. 3. Develop laboratory skills to apply scientific methods to design, execute, analyze, and experiment. 4. Develop advanced problem-solving skills and use mathematics to solve engineering and physics problems. 5. Attend weekly seminars and meetings. 6. Present a final report about the training and its benefits to the student.

Each student is assigned to one advisor who will follow their progress throughout the period. The student will have a specific task to accomplish each new week with a sub-report summarizing all the accomplished work to be submitted to the supervisor. In addition, each laboratory has an organized weekly meeting to check on the student's progress. This paper will highlight the SAASST engineering and sciences laboratories and how each laboratory implements STEM education in its internship program.